



JK Lakshmipat University, Jaipur
Institute of Management
END TERM EXAMINATION
(Nov, 2018)

Programme: BBA – Sem III
MM: 40 Marks

Course: Business Statistics
Time: 2 Hours
Course Code: QT06

Instructions: Attempt any four questions. Statistical Tables shall be provided on request.

1. a) State Central Limit Theorem. Explain its significance in inferential statistics. 10
 b) Differentiate between following:
 i. Type I and Type II Errors
 ii. Null Hypothesis and Alternate Hypothesis
2. a) Given that a random variable X has a normal distribution with mean 6.4 and standard deviation 2.7, find 10
 i. $P(4.0 < x < 5.0)$
 ii. $P(x > 2.0)$
 iii. $P(x < 7.2)$
 iv. $P((x < 3.0) \text{ or } (x > 9.0))$
 b) In a sample of 25 observations from a normal distribution with mean 98.6 and standard deviation 17.2, what is the probability that the sample mean is between 92 and 102. Also find the corresponding probability given a sample of 36
3. a) For a population with a known variance of 185, a sample of 64 individuals leads to 217 as an estimate of the mean. Find the standard error of mean. 10
 b) In the above question, establish an interval estimate that should include the population mean 68.3 percent of the time.
 c) Explain the difference between significance level and confidence level. What is the statistical interpretation of increasing the confidence level from 95% to 99% in terms of areas of acceptance or rejection?
4. A local car dealer wants to know if the purchasing habits of a buyer buying accessories have changed. Based upon collected data he has estimated that the distribution of accessories purchased is approximately normally 10

distributed with an average of \$2000 per customer. To test this hypothesis he has collected data about the accessories purchased by the last 7 customers, which were \$2300, \$2386, \$1920, \$1578, \$3065, \$2312 and \$1790. State and test the hypothesis whether the accessories purchased on an average has changed.

5. A hospital uses large quantities of packaged doses of a particular drug. The individual dose of this drug is 100 cc. The action of the drug is such that the body will harmlessly pass off excessive doses. On the other hand, insufficient doses do not produce the desired medical effect, and they interfere with patient's treatment. The hospital knows from experience that the population standard deviation is 2 cc. The hospital inspects 50 doses of this drug at random from a very large shipment and finds the mean of these doses to be 99.75 cc. If the hospital sets a 0.10 significance level and asks us whether the dosages in this shipment are too small, how can we find the answer? 10

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